

Table 3: Summary Statistics: Work Styles (Keyword Mentions Per Ad)

O*NET Work Styles	1940s	1950s	1960s	1970s	1980s	1990s	Avg.
1C1a Achievement/Effort	0.008	0.007	0.012	0.018	0.027	0.041	0.016
1C1b Persistence	0.003	0.003	0.006	0.007	0.008	0.008	0.006
1C1c Initiative	0.046	0.042	0.055	0.051	0.054	0.044	0.050
1C2b Leadership	0.048	0.047	0.074	0.104	0.144	0.185	0.092
1C3a Cooperation	0.008	0.005	0.005	0.007	0.010	0.015	0.007
1C3b Concern for Others	0.197	0.228	0.256	0.259	0.278	0.272	0.250
1C3c Social Orientation	0.022	0.021	0.016	0.014	0.025	0.040	0.020
1C4a Self Control	0.023	0.036	0.038	0.030	0.025	0.015	0.030
1C4b Stress Tolerance	0.008	0.009	0.012	0.012	0.011	0.012	0.011
1C4c Adaptability/Flexibility	0.022	0.015	0.015	0.015	0.025	0.026	0.018
1C5a Dependability	0.055	0.030	0.020	0.014	0.018	0.015	0.024
1C5b Attention to Detail	0.060	0.052	0.058	0.063	0.074	0.088	0.063
1C5c Integrity	0.010	0.007	0.009	0.008	0.008	0.009	0.008
1C6 Independence	0.004	0.003	0.005	0.007	0.008	0.008	0.006
1C7a Innovation	0.016	0.017	0.023	0.026	0.035	0.048	0.026
1C7b Analytical Thinking	0.016	0.019	0.032	0.034	0.047	0.075	0.034

bottom panels depict similarly broad within-occupation declines in the frequency of mentions of words related to routine manual and routine cognitive tasks.

Table 4: Summary Statistics: Skills (Keyword Mentions Per Ad)

O*NET Skill	1940s	1950s	1960s	1970s	1980s	1990s	Avg.
2A1a Reading Comprehension	0.035	0.032	0.042	0.036	0.050	0.063	0.041
2A1b Active Listening	0.003	0.002	0.003	0.005	0.012	0.020	0.006
2A1c Writing	0.197	0.136	0.109	0.077	0.081	0.089	0.110
2A1d Speaking	0.038	0.027	0.029	0.035	0.057	0.079	0.039
2A1e Mathematics	0.064	0.086	0.122	0.125	0.151	0.191	0.119
2A1f Science	0.056	0.087	0.136	0.144	0.176	0.223	0.133
2A2a Critical Thinking	0.023	0.026	0.035	0.034	0.035	0.046	0.032
2A2b Active Learning	0.011	0.008	0.011	0.014	0.015	0.017	0.012
2A2c Learning Strategies	0.018	0.021	0.037	0.044	0.053	0.077	0.039
2A2d Monitoring	0.052	0.062	0.071	0.080	0.090	0.106	0.075
2B1a Social Perceptiveness	0.000	0.000	0.000	0.000	0.002	0.002	0.001
2B1b Coordination	0.022	0.028	0.052	0.074	0.097	0.115	0.061
2B1c Persuasion	0.001	0.001	0.001	0.003	0.008	0.019	0.004
2B1d Negotiation	0.007	0.003	0.004	0.006	0.012	0.025	0.007
2B1e Instructing	0.026	0.015	0.014	0.014	0.019	0.020	0.017
2B1f Service Orientation	0.095	0.069	0.082	0.092	0.138	0.190	0.100
2B2i Complex Problem Solving	0.009	0.012	0.018	0.022	0.025	0.044	0.020
2B3a Operations Analysis	0.083	0.124	0.194	0.233	0.244	0.261	0.191
2B3b Technology Design	0.104	0.147	0.179	0.197	0.210	0.234	0.178
2B3c Equipment Selection	0.074	0.059	0.049	0.041	0.032	0.022	0.047
2B3d Installation	0.089	0.071	0.075	0.085	0.084	0.074	0.080
2B3e Programming	0.015	0.012	0.046	0.086	0.095	0.135	0.059
2B3g Operation Monitoring	0.093	0.090	0.100	0.119	0.121	0.118	0.106
2B3h Operation and Control	0.138	0.148	0.164	0.180	0.169	0.157	0.162
2B3j Equipment Maintenance	0.199	0.142	0.114	0.104	0.085	0.055	0.117
2B3k Troubleshooting	0.075	0.065	0.073	0.075	0.083	0.106	0.076
2B3l Repairing	0.051	0.026	0.023	0.030	0.030	0.025	0.029
2B3m Quality Control Analysis	0.065	0.078	0.077	0.076	0.070	0.072	0.074
2B4e Judgment and Decision Making	0.037	0.023	0.023	0.025	0.028	0.027	0.026
2B4g Systems Analysis	0.109	0.175	0.231	0.243	0.255	0.279	0.218
2B4h Systems Evaluation	0.114	0.208	0.250	0.256	0.267	0.310	0.236
2B5a Time Management	0.008	0.007	0.007	0.009	0.012	0.014	0.009
2B5b Mgmt. of Financial Resources	0.162	0.124	0.149	0.180	0.238	0.320	0.179
2B5c Mgmt. of Material Resources	0.084	0.112	0.137	0.154	0.154	0.157	0.135
2B5d Mgmt. of Personnel Resources	0.061	0.067	0.099	0.130	0.183	0.237	0.120

Table 5: Summary Statistics: Knowledge Requirements (Keyword Mentions Per Ad)

O*NET Knowledge Requirements	1940s	1950s	1960s	1970s	1980s	1990s	Avg.
2C1a Administration and Management	0.151	0.155	0.218	0.279	0.353	0.457	0.252
2C1b Clerical	0.325	0.266	0.196	0.152	0.174	0.088	0.203
2C1c Economics and Accounting	0.066	0.081	0.135	0.170	0.211	0.270	0.147
2C1d Sales and Marketing	0.347	0.285	0.260	0.256	0.327	0.415	0.295
2C1e Customer and Personal Service	0.135	0.145	0.160	0.182	0.223	0.282	0.178
2C1f Personnel and Human Resources	0.067	0.092	0.129	0.140	0.174	0.181	0.129
2C10 Transportation	0.070	0.036	0.026	0.019	0.021	0.018	0.030
2C1f Production and Processing	0.234	0.188	0.184	0.180	0.166	0.144	0.183
2C2b Food Production	0.066	0.053	0.045	0.038	0.029	0.021	0.043
2C3a Computers and Electronics	0.139	0.228	0.260	0.263	0.279	0.317	0.249
2C3b Engineering and Technology	0.105	0.159	0.201	0.206	0.217	0.252	0.190
2C3c Design	0.182	0.212	0.205	0.200	0.207	0.242	0.205
2C3d Building and Construction	0.148	0.090	0.074	0.057	0.057	0.048	0.077
2C3e Mechanical	0.231	0.232	0.192	0.155	0.120	0.064	0.175
2C4a Mathematics	0.064	0.086	0.122	0.125	0.151	0.191	0.119
2C4b Physics	0.090	0.140	0.182	0.177	0.196	0.227	0.169
2C4c Chemistry	0.070	0.075	0.090	0.078	0.082	0.090	0.081
2C4d Biology	0.031	0.035	0.048	0.045	0.057	0.070	0.046
2C4e Psychology	0.030	0.033	0.047	0.049	0.069	0.089	0.050
2C4f Sociology and Anthropology	0.013	0.011	0.017	0.020	0.029	0.036	0.020
2C4g Geography	0.059	0.071	0.090	0.094	0.103	0.077	0.086
2C5a Medicine and Dentistry	0.048	0.037	0.040	0.056	0.087	0.104	0.056
2C5b Therapy and Consulting	0.010	0.009	0.014	0.031	0.056	0.063	0.027
2C6 Education and Counseling	0.270	0.200	0.212	0.182	0.225	0.238	0.214
2C7a English Language	0.103	0.062	0.049	0.039	0.050	0.066	0.056
2C7b Foreign Language	0.116	0.069	0.054	0.043	0.060	0.087	0.064
2C7c Fine Arts	0.020	0.016	0.016	0.017	0.016	0.017	0.017
2C7d History and Archaeology	0.001	0.000	0.001	0.001	0.002	0.005	0.001
2C7e Philosophy and Theology	0.003	0.003	0.002	0.003	0.003	0.005	0.003
2C8a Public Safety and Security	0.017	0.013	0.012	0.020	0.024	0.033	0.018
2C8b Law and Government	0.065	0.047	0.042	0.060	0.085	0.088	0.060
2C9a Telecommunications	0.014	0.026	0.037	0.039	0.062	0.077	0.040
2C9b Communications and Media	0.073	0.064	0.082	0.092	0.132	0.175	0.095

Table 6: Summary Statistics: Work Activities (Keyword Mentions Per Ad)

O*NET Work Activity	1940s	1950s	1960s	1970s	1980s	1990s	Avg.
4A1a1 Getting Information	0.068	0.042	0.026	0.018	0.016	0.013	0.029
4A1a2 Monitor Processes, Materials	0.138	0.122	0.112	0.098	0.097	0.100	0.110
4A1b1 Identifying Objects, Actions, Events	0.012	0.010	0.017	0.026	0.037	0.053	0.023
4A1b2 Inspecting Equipment, Structures	0.265	0.234	0.193	0.156	0.122	0.077	0.180
4A1b3 Estimating Products Characteristics	0.410	0.366	0.371	0.400	0.410	0.428	0.391
4A2a1 Judging the Qualities of Things, People	0.002	0.002	0.004	0.005	0.008	0.012	0.005
4A2a2 Processing Information	0.009	0.016	0.028	0.037	0.047	0.050	0.030
4A2a3 Evaluating Information on Compliance	0.013	0.023	0.033	0.037	0.041	0.054	0.033
4A2a4 Analyzing Data or Information	0.030	0.033	0.043	0.047	0.053	0.078	0.045
4A2b1 Making Decisions, Solving Problems	0.005	0.007	0.012	0.016	0.021	0.039	0.015
4A2b2 Thinking Creatively	0.030	0.029	0.036	0.038	0.043	0.054	0.037
4A2b3 Updating, Using Relevant Knowledge	0.090	0.088	0.113	0.116	0.126	0.152	0.111
4A2b4 Developing Objectives and Strategies	0.048	0.080	0.108	0.130	0.152	0.213	0.116
4A2b5 Scheduling Work and Activities	0.066	0.061	0.069	0.081	0.091	0.092	0.075
4A2b6 Organizing, Planning, Prioritizing Work	0.020	0.020	0.035	0.050	0.069	0.095	0.044
4A3a1 Performing General Physical Activities	0.058	0.057	0.076	0.096	0.115	0.101	0.084
4A3a2 Handling and Moving Objects	0.023	0.012	0.008	0.006	0.005	0.005	0.009
4A3a3 Controlling Machines and Processes	0.207	0.207	0.212	0.203	0.173	0.138	0.197
4A3a4 Operating Vehicles, Mechanized Devices	0.255	0.212	0.186	0.155	0.138	0.103	0.177
4A3b1 Interacting With Computers	0.056	0.060	0.086	0.118	0.170	0.259	0.111
4A3b2 Drafting, Specifying Devices	0.254	0.290	0.285	0.262	0.230	0.197	0.262
4A3b4 Repairing, Maintaining Mech. Equip.	0.184	0.186	0.185	0.174	0.151	0.120	0.173
4A3b5 Repairing, and Maintaining Elec. Equip.	0.168	0.161	0.169	0.163	0.148	0.119	0.159
4A3b6 Documenting/Recording Information	0.020	0.019	0.019	0.022	0.034	0.049	0.024
4A4a1 Interpreting for Others	0.007	0.013	0.027	0.038	0.049	0.052	0.030
4A4a2 Communicating Inside Organization	0.112	0.112	0.138	0.147	0.183	0.184	0.143
4A4a3 Communicating Outside Organization	0.048	0.052	0.077	0.107	0.133	0.165	0.091
4A4a4 Establishing, Maintaining Relationships	0.010	0.010	0.016	0.028	0.063	0.121	0.032
4A4a5 Assisting and Caring for Others	0.017	0.021	0.035	0.042	0.061	0.071	0.039
4A4a6 Selling or Influencing Others	0.164	0.153	0.144	0.151	0.195	0.223	0.164
4A4a7 Resolving Conflicts, Negotiating	0.008	0.010	0.013	0.015	0.019	0.035	0.015
4A4a8 Working Directly with the Public	0.489	0.386	0.376	0.433	0.469	0.490	0.426
4A4b1 Coordinating Others ' Work/Activities	0.056	0.082	0.148	0.191	0.240	0.280	0.160
4A4b2 Developing and Building Teams	0.034	0.047	0.054	0.068	0.085	0.133	0.064
4A4b3 Training and Teaching Others	0.036	0.024	0.030	0.036	0.053	0.060	0.037
4A4b4 Guiding, Directing, Motivating	0.016	0.013	0.017	0.024	0.036	0.059	0.024
4A4b5 Coaching and Developing Others	0.020	0.032	0.036	0.046	0.054	0.073	0.042
4A4b6 Provide Consultation and Advice	0.016	0.018	0.022	0.022	0.029	0.044	0.023
4Ac1 Performing Administrative Activities	0.109	0.117	0.116	0.117	0.142	0.105	0.120
4Ac2 Staffing Organizational Units	0.087	0.099	0.128	0.134	0.159	0.138	0.126
4Ac3 Monitoring, Controlling Resources	0.051	0.063	0.080	0.092	0.098	0.109	0.081

Table 7: Summary Statistics: Technologies, A Through L (Keyword Mentions Per Thousand Ads)

	1940s	1950s	1960s	1970s	1980s	1990s	Avg.
APL	0.3	0.2	0.3	0.5	0.8	0.3	0.4
BAL (Basic assembly language)	1.2	0.8	1.6	5.6	2.4	0.8	2.4
CAD	0.0	0.0	0.0	0.2	1.0	0.4	0.3
CICS	0.0	0.0	0.0	2.8	6.3	4.8	2.1
CNC	0.0	0.0	0.0	0.0	0.2	0.1	0.0
Cobol	0.0	0.0	3.1	12.3	10.6	7.8	5.8
C++	0.0	0.0	0.0	0.0	0.0	1.9	0.1
DB2	0.0	0.0	0.0	0.0	1.1	6.2	0.6
DOS	1.6	0.9	2.4	8.0	10.5	13.3	5.4
EDP	0.1	0.5	9.2	12.5	7.7	1.2	6.5
FORTRAN	0.0	0.0	1.4	3.7	3.7	0.9	1.9
Foxpro	0.0	0.0	0.0	0.0	0.0	2.1	0.1
HTML	0.0	0.0	0.0	0.0	0.0	4.3	0.3
IBM 360	0.1	0.4	2.6	2.7	0.2	0.0	1.3
IBM 370	0.1	0.2	0.1	2.9	1.5	0.1	1.0
IBM 5520	0.0	0.0	0.0	0.0	0.9	0.0	0.2
IMS	0.3	0.1	0.2	0.5	0.4	5.8	0.6
JAVA	0.1	0.1	0.3	2.6	2.4	1.8	1.2
Job Control Language	1.2	1.0	0.9	1.1	1.5	9.8	1.7
LAN (Local Area Network)	0.0	0.0	0.0	0.0	2.5	6.2	0.9
Lotus 123	0.0	0.0	0.0	0.0	0.0	3.6	0.2
Lotus Notes	0.0	0.0	0.0	0.0	0.0	3.6	0.2

Table 8: Summary Statistics: Technologies, M through Z (Keyword Mentions Per Thousand Ads)

	1940s	1950s	1960s	1970s	1980s	1990s	Avg.
Microsoft Excel	0.0	0.0	0.0	0.0	0.1	4.5	0.3
Microsoft Power Point	0.0	0.0	0.0	0.0	0.0	5.8	0.4
Microsoft Word	0.0	0.0	0.0	0.0	0.6	17.3	1.2
MVS	0.0	0.0	0.0	0.6	3.9	3.2	1.1
Novell	0.0	0.0	0.0	0.0	0.2	7.2	0.5
Oracle	0.1	0.0	0.1	0.1	0.5	9.8	0.7
PASCAL	0.1	0.0	0.1	0.1	1.5	0.6	0.4
POS (Point of Sale)	0.2	0.5	0.2	0.3	0.2	0.3	0.3
PowerBuilder	0.0	0.0	0.0	0.0	0.0	2.0	0.1
Quark	0.0	0.0	0.0	0.0	0.1	8.2	0.5
RPG	0.0	0.0	0.1	0.5	0.8	0.3	0.3
Sabre	0.0	0.0	0.1	0.2	1.8	2.4	0.6
SQL	0.3	0.2	0.1	0.1	0.4	7.2	0.6
Sybase	0.0	0.0	0.0	0.0	0.0	5.5	0.3
TCP (Transmission Control Protocol)	0.0	0.0	0.0	0.0	0.0	3.2	0.2
TSO (TCP Segment Offloading)	0.1	0.0	0.1	0.6	1.3	0.9	0.4
UNIVAC	0.0	0.2	0.6	0.8	0.4	0.0	0.5
UNIX	0.0	0.0	0.0	0.1	2.3	18.8	1.6
VAX	0.1	0.0	0.0	0.1	3.1	2.9	0.8
VisualBasic	0.0	0.0	0.0	0.0	0.0	4.4	0.3
VMS (Operating System)	0.1	0.0	0.0	0.1	1.6	2.7	0.5
VSAM	0.0	0.0	0.0	0.2	1.4	1.3	0.4
Vydec	0.0	0.0	0.0	0.6	1.4	0.0	0.4
WordPerfect	0.0	0.0	0.0	0.0	2.1	11.0	1.1
Xerox 630	0.0	0.0	0.0	0.0	0.4	0.0	0.1
Xerox 800	0.0	0.0	0.0	0.2	0.3	0.1	0.1
Xerox 860	0.0	0.0	0.0	0.0	1.4	0.0	0.3

Table 9: Summary Statistics: Schooling and Experience (Keyword Mentions Per Ad)

	1940s	1950s	1960s	1970s	1980s	1990s	Avg.
Experience: 1 year	0.007	0.010	0.017	0.021	0.025	0.020	0.017
Experience: 2 years	0.019	0.027	0.038	0.041	0.049	0.052	0.038
Experience: 3 years	0.015	0.019	0.023	0.030	0.038	0.042	0.027
Experience: 4 years	0.009	0.007	0.006	0.006	0.008	0.011	0.007
Experience: 5 years	0.017	0.019	0.017	0.022	0.027	0.032	0.021
Associates Degree	0.000	0.000	0.000	0.001	0.002	0.001	0.001
Bachelor of Arts	0.015	0.014	0.015	0.015	0.024	0.051	0.019
Bachelor of Sciences	0.005	0.010	0.014	0.017	0.019	0.020	0.014
Masters	0.037	0.029	0.036	0.045	0.071	0.036	0.043
MBA	0.001	0.001	0.006	0.012	0.012	0.015	0.007
PHD	0.002	0.004	0.004	0.004	0.004	0.003	0.004
CPA	0.028	0.023	0.018	0.019	0.021	0.020	0.021

Table 10: Summary Statistics: Spitz-Oener (2006) Task Groups (Keyword Mentions Per Ad)

	1940s	1950s	1960s	1970s	1980s	1990s	Avg.
Literature							
Non-routine Analytic	0.082	0.119	0.141	0.133	0.145	0.174	0.132
Non-routine Interactive	0.157	0.105	0.091	0.085	0.115	0.145	0.107
Non-routine Manual	0.017	0.008	0.008	0.010	0.012	0.012	0.010
Routine Manual	0.032	0.018	0.010	0.007	0.007	0.004	0.012
Routine Cognitive	0.021	0.011	0.007	0.005	0.003	0.001	0.008
Literature+CBOW							
Non-routine Analytic	0.171	0.201	0.242	0.248	0.290	0.383	0.246
Non-routine Interactive	0.350	0.298	0.283	0.285	0.376	0.480	0.323
Non-routine Manual	0.059	0.033	0.032	0.029	0.034	0.034	0.035
Routine Manual	0.151	0.101	0.063	0.040	0.048	0.041	0.071
Routine Cognitive	0.068	0.033	0.024	0.014	0.008	0.003	0.024

Notes: The set of rows marked “literature” use Spitz-Oener (2006)’s mappings between words and task groups. In the rows marked “Literature+CBOW,” we include in our mappings words that are deemed characteristic of the task groups according to our continuous bag of words.

Table 11: Summary Statistics: Deeming and Kahn (2018) Skill Groups (Keyword Mentions Per Ad)

	1940s	1950s	1960s	1970s	1980s	1990s	Avg.
Literature							
Problem Solving	0.033	0.045	0.057	0.044	0.053	0.068	0.050
Social	0.009	0.009	0.012	0.015	0.038	0.076	0.021
Character	0.010	0.005	0.004	0.005	0.018	0.028	0.009
Writing	0.012	0.011	0.012	0.010	0.017	0.026	0.013
Customer Service	0.109	0.115	0.116	0.129	0.164	0.198	0.132
Project Management	0.000	0.000	0.000	0.001	0.002	0.004	0.001
People Management	0.016	0.025	0.041	0.050	0.069	0.080	0.045
Financial	0.066	0.063	0.076	0.090	0.105	0.123	0.084
Computer	0.000	0.005	0.020	0.039	0.063	0.122	0.034
Literature+CBOW							
Problem Solving	0.059	0.073	0.087	0.070	0.081	0.106	0.078
Social	0.023	0.019	0.026	0.036	0.079	0.134	0.043
Character	0.310	0.235	0.255	0.275	0.384	0.381	0.293
Writing	0.030	0.027	0.027	0.024	0.039	0.061	0.031
Customer Service	0.182	0.171	0.163	0.181	0.253	0.336	0.198
Project Management	0.126	0.191	0.240	0.268	0.292	0.340	0.241
People Management	0.086	0.111	0.160	0.185	0.225	0.215	0.164
Financial	0.152	0.162	0.158	0.162	0.177	0.203	0.165
Computer	0.018	0.047	0.091	0.129	0.188	0.295	0.114

Notes: The set of rows marked “literature” use Deming and Kahn (2017)’s mappings between words and skill groups. In the rows marked “Literature+CBOW,” we include in our mappings words that are deemed characteristic of the task groups according to our continuous bag of words.